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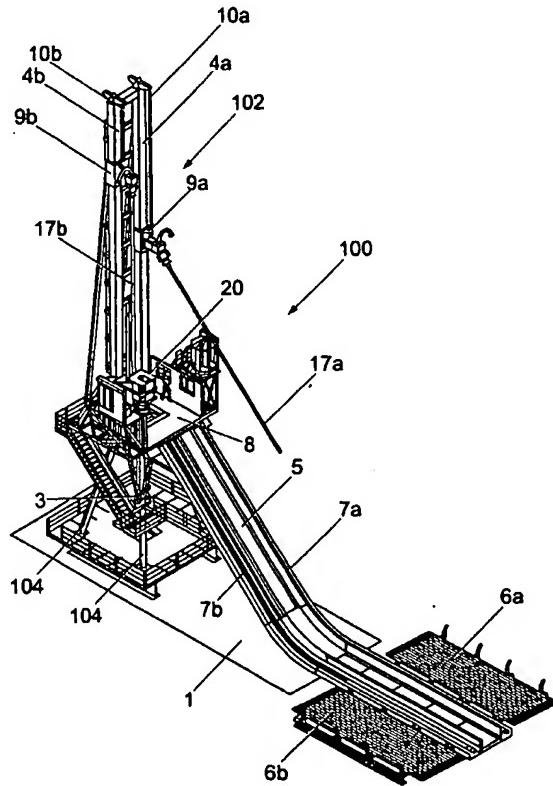
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- (21) International Application Number: **PCT/GB01/00781** (74) Agent: **MURGITROYD & COMPANY**: 373 Scotland Street, Glasgow G5 8QA (GB).
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- (71) Applicant (*for all designated States except US*): **WEATHERFORD/LAMB, Inc** [US/US]; 515 Post Oak Blvd., Suite 600, Houston TX 77207 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **ROBICHAUX, Dicky**

[Continued on next page]

(54) Title: APPARATUS AND METHOD RELATING TO TONGS, CONTINUOUS CIRCULATION AND TO SAFETY SLIPS

WO 01/66905 A3



(57) Abstract: Apparatus for inserting or removing a string of tubular from a borehole includes upper and lower closed head power tongs to make up/break out connections with the lower tong as rotary back-up. It also includes a continuous circulation system to keep fluid circulating during tripping operations and a safety slip to prevent tubulars slipping therein comprising two arrangements of grips which are coupled to one another.



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7 February 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Int	tional Application No
PCT/GB 01/00781	

A. CLASSIFICATION OF SUBJECT MATTER					
IPC 7	E21B19/16	E21B3/04	E21B19/20	E21B19/15	E21B19/10
	E21B21/00	E21B21/10			
According to International Patent Classification (IPC) or to both national classification and IPC					
B. FIELDS SEARCHED					
Minimum documentation searched (classification system followed by classification symbols)					
IPC 7	E21B F16K				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched					
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)					
EPO-Internal, WPI Data, PAJ					
C. DOCUMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where appropriate, of the relevant passages				Relevant to claim No.
X	WO 99 34089 A (BAKKER THOMAS WALBURGIS ; WELL ENGINEERING PARTNERS B V (NL); WECHE) 8 July 1999 (1999-07-08) page 3, line 3 -page 4, line 5; figures 1,6 page 5, line 20 -page 8, line 2				1-3,5-8
X	US 1 386 908 A (HENRY TAYLOR WILLIAM) 9 August 1921 (1921-08-09) page 1, line 108 -page 2, line 19; figure 2				1-3,7,8
A	US 4 938 109 A (TORRES CARLOS A ET AL) 3 July 1990 (1990-07-03) column 6, line 40 - line 45; figure 2				1
					-/-
<input checked="" type="checkbox"/>	Further documents are listed in the continuation of box C.				<input checked="" type="checkbox"/> Patent family members are listed in annex.
<p>* Special categories of cited documents :</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"S" document member of the same patent family</p>					
Date of the actual completion of the international search			Date of mailing of the international search report		
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European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl. Fax: (+31-70) 340-3016			Dantinne, P		

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International Application No	
PCT/GB 01/00781	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 01 03889 A (BANGERT DANIEL S) 18 January 2001 (2001-01-18) page 5, line 13 - line 25; figure 1 ---	1
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-/-		

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 499 919 A (FORESTER BUFORD G) 19 February 1985 (1985-02-19) column 1, line 35 - line 41; figures 1,2 column 2, line 4 - line 26; claim 1 ---	25-29
X	US 2 214 194 A (FRANKLEY LAWRENCE W) 10 September 1940 (1940-09-10) page 1, column 1, line 1 - line 17; figures 1,2 page 2, column 1, line 1 - line 48 ---	25-29
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INTERNATIONAL SEARCH REPORT

I. International application No.
PCT/GB 01/00781

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8

A tong apparatus comprising upper and lower tong to make up/break out a tubular connection

2. Claims: 9-22

Apparatus and method to circulate fluid through a tubular string

3. Claims: 23-24

Upper and lower seal device to provide a seal with a tubular to be made up in to or broken out from a tubular string

4. Claims: 25-29

A valve mechanism to seal between two tubulars

5. Claims: 30-37

Apparatus to prevent one tubular slipping therein

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No	
PCT/GB 01/00781	

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Information on patent family members

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